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10/662,667	09/15/2003	Takehiro Nakajima	2271/71086	1872

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EXAMINER	
CHENG, PETER L	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/662,667	NAKAJIMA, TAKEHIRO	
	Examiner	Art Unit	
	Peter L. Cheng	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,21-24,26 and 37* is/are rejected.

7)☒ Claim(s) *4,6-20,25 and 27-36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "METHOD OF, APPARATUS AND SYSTEM FOR CREATING A PRINTER PROFILE BY USING HISTORICAL INFORMATION TO DETERMINE A NUMBER OF COLOR PATCHES", or similar wording.

2. The disclosure is objected to because of the following informalities:

- **Page 2** (of the Amendments to the Specification), *regarding the paragraph bridging pages 1 and 2*, **line 5:** it is assumed that applicant intended to cite **produces quite *a* load on processing resources** instead of **produces quite load on processing resources**;

- **Page 4** (of the Amendments to the Specification), *regarding the paragraph bridging pages 10 and 11*, **line 15:** it is assumed that applicant intended to cite **are combined with** instead of **are combined *the* with**;

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 5, 23, 24, 26 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by **KUMADA [US Patent Application 2002/0145744 A1]**.

As for claim 1, KUMADA teaches an image processing apparatus comprising:

a converting unit that performs color conversion of input data

["The color conversion module shown in Fig. 11 is supplied as software to, e.g., a personal computer ... The user can instruct execution of the colorimetric process via a user interface displayed on a monitor 1004"; **page 5, paragraph 95, lines 1 – 5.**

"A colorimeter (spectrophotometer) 1001 and colorimetric module 1002 measure color patches of a *sample image* ... printed by an output device. The colorimetric result is supplied to a profile generation module 1003 *on-line* or off-line"; **page 5, paragraph 92, lines 1 – 5],**

wherein the input data is color data obtained from *previous* measurement of a color chart of an image

[Fig. 1 *sample image* **109** produced by a color patch generator **108;** see also a *sample image* shown in **Fig. 4];**

a storage unit that stores the conversion data and history information [[on]] of *the previous* measurement of the color chart

["The colorimetric result is supplied to a profile generation module 1003 on-line or off-line, which generates a profile 1101D (Lab to CMYK conversion LUT: BtoA0) and profile 1101S (device value to Lab conversion LUT: AtoB0) as output device profiles according to the definitions of ICC (International Color Consortium) by the method explained in the above embodiments"; **page 5, paragraph 92, lines 4 – 10.**

KUMADA further teaches storing these profiles (i.e., "conversion data") in a memory (i.e., a "storage unit"). With reference to **Fig. 22**, KUMADA cites that

"these conversion tables are finally stored in the memory 1012 as the ICC profiles of the output device 1010"; **page 6, paragraph 120, lines 6 – 7.**

With reference to **Fig. 26,** KUMADA illustrates a "sequence for saving colorimetric values *and history management information*, which is executed by the profile generation module 1003"; **page 8, paragraph 144, lines 1 – 4.** At step **S39**, "a list of colorimetric values (see FIG. 31) ... is saved at the same saving location as the profile"; **page 8, paragraph 152, lines 2 – 5.** At step **S41**, "*history management information* (see FIG. 32) ... is saved at the same saving location as the profile"; **page 8, paragraph 153, lines 2 – 5];**

an arithmetic unit that compares the history information with information [[on the]] *of new* measurement of the color chart to determine number of color patches

[History information comprises of measured color patch colorimetric values taken at various "timings". KUMADA explains, "Colorimetric values Lab of color patches output at different timings and their history information are read, and the colorimetric values and standard colorimetric values Lab_i are compared ... If no standard colorimetric values Lab_i are available, colorimetric values used upon generating a profile are used in place of them"; **page 9, paragraph 165, lines 1 – 7.**

With reference to **Fig. 21**, KUMADA teaches a table which "defines standard Lab colorimetric values and allowable differences delta_E corresponding to CMYK values of the color patches"; **page 6, paragraph 107, lines 1 – 3.** "The profile generation module 1003 compares a colorimetric value Lab of each color patch and a corresponding standard value Lab_i stored in the table, and when the difference exceeds an allowable difference delta_E, the module 1003 attaches an alarm mark to the colorimetric result"; **page 6, paragraph 108, lines 1 – 5.** "If the operator instructs to execute the colorimetric process again, only color patches corresponding to the colorimetric results with alarm marks are measured again"; **page 6, paragraph 110, lines 4 – 7.** That is, by comparing the colorimetric value of a new measurement of the color chart with a "standard colorimetric value" (which, in turn, may have been taken from a previously generated profile), a minimum number of patches to be measured can be determined**];**

and an updating unit that updates [[the]] *a* printer profile based on the number of color patches

["When the color difference has exceeded the allowable level dEi, a profile is regenerated"; **page 9, paragraph 174, lines 1 - 2].**

Regarding claim 2, KUMADA further teaches the image processing apparatus according to claim 1, wherein

the *history* information [[on]] *of* the *previous* measurement of the color chart includes the color data

[As noted for claim 1, with reference to **Fig. 26,** KUMADA illustrates a "sequence for saving colorimetric values" (i.e., "color data") "and history management information, which is executed by the profile generation module 1003"; **page 8, paragraph 144, lines 1 – 4.** At step **S39**, "a list of colorimetric values (see FIG. 31) ... is saved at the same saving location as the profile"; **page 8, paragraph 152, lines 2 – 5],**

number of times of the measurement

[The colorimetric values are measured at different timings and their history information is stored. **Fig. 33** illustrates historical color difference data which is used in determining profile regeneration timing**],**

and color regions at the time of the *previous* measurement

["In the example of the color difference for variation display shown in Fig. 36, the average color difference for all the color patches (entire device color space), the average color difference for a partial color space region such as a flesh tone region, and the color difference for a custom color such as a spot color are shown" in **Fig. 36; page 9, paragraph 178, lines 5 - 10].**

Regarding claim 5, KUMADA further teaches the image processing apparatus according to claim 1, wherein

the arithmetic unit determines the number of color patches based on an evaluation standard, wherein the evaluation standard includes a *newly measured patch value* and a *patch value measured last time* and stored as the history information

[As noted for claim 1, by comparing the colorimetric value of a new measurement of the color chart with a "standard colorimetric value", a minimum number of patches to be measured can be determined.

Also noted for claim 1, KUMADA teaches that the "standard colorimetric values" may be "colorimetric values used upon generating a profile" (i.e., "patch values measured last time and stored as history information")**]**.

As for claim 23, KUMADA teaches an image forming apparatus comprising:

a converting unit that performs color conversion of input data

["The color conversion module shown in Fig. 11 is supplied as software to, e.g., a personal computer ... The user can instruct execution of the colorimetric process via a user interface displayed on a monitor 1004"; **page 5, paragraph 95, lines 1 – 5.**

"A colorimeter (spectrophotometer) 1001 and colorimetric module 1002 measure color patches of a *sample image* ... printed by an output device. The colorimetric result is supplied to a profile generation module 1003 *on-line* or off-line"; **page 5, paragraph 92, lines 1 – 5],**

wherein the input data is color data obtained from *previous* measurement of a color chart of an image

[Fig. 1 *sample image* **109** produced by a color patch generator **108;** see also a *sample image* shown in **Fig. 4];**

a storage unit that stores the conversion data and history information [[on]] *of* the *previous* measurement of the color chart

["The colorimetric result is supplied to a profile generation module 1003 on-line or off-line, which generates a profile 1101D (Lab to CMYK conversion LUT: BtoA0) and profile 1101S (device value to Lab conversion LUT: AtoB0) as output device profiles according to the definitions of ICC (International Color Consortium) by the method explained in the above embodiments"; **page 5, paragraph 92, lines 4 – 10.**

KUMADA further teaches storing these profiles (i.e., "conversion data") in a memory (i.e., a "storage unit"). With reference to **Fig. 22**, KUMADA cites that

"these conversion tables are finally stored in the memory 1012 as the ICC profiles of the output device 1010"; **page 6, paragraph 120, lines 6 – 7.**

With reference to **Fig. 26,** KUMADA illustrates a "sequence for saving colorimetric values *and history management information*, which is executed by the profile generation module 1003"; **page 8, paragraph 144, lines 1 – 4.** At step **S39**, "a list of colorimetric values (see FIG. 31) ... is saved at the same saving location as the profile"; **page 8, paragraph 152, lines 2 – 5.** At step **S41**, "*history management information* (see FIG. 32) ... is saved at the same saving location as the profile"; **page 8, paragraph 153, lines 2 – 5];**

an arithmetic unit that compares the history information with information [[on the]] *of new* measurement of the color chart to determine number of color patches

[History information comprises of measured color patch colorimetric values taken at various "timings". KUMADA explains, "Colorimetric values Lab of color patches output at different timings and their history information are read, and the colorimetric values and standard colorimetric values Lab_i are compared ... If no standard colorimetric values Lab_i are available, colorimetric values used upon generating a profile are used in place of them"; **page 9, paragraph 165, lines 1 – 7.**

With reference to **Fig. 21**, KUMADA teaches a table which "defines standard Lab colorimetric values and allowable differences delta_E corresponding to CMYK values of the color patches"; **page 6, paragraph 107, lines 1 – 3.** "The profile generation module 1003 compares a colorimetric value Lab of each color patch and a corresponding standard value Lab_i stored in the table, and when the difference exceeds an allowable difference delta_E, the module 1003 attaches an alarm mark to the colorimetric result"; **page 6, paragraph 108, lines 1 – 5.** "If the operator instructs to execute the colorimetric process again, only color patches corresponding to the colorimetric results with alarm marks are measured again"; **page 6, paragraph 110, lines 4 – 7.** That is, by comparing the colorimetric value of a new measurement of the color chart with a "standard colorimetric value" (which, in turn, may have been taken from a previously generated profile), a minimum number of patches to be measured can be determined**];**

a profile storage unit that stores a printer profile

[As noted for claim 1, KUMADA further teaches storing these profiles (i.e., "conversion data") in a memory (i.e., a "storage unit"). With reference to **Fig. 22**, KUMADA cites that "these conversion tables are finally stored in the memory 1012 as the ICC profiles of the output device 1010"; **page 6, paragraph 120, lines 6 – 7];**

an updating unit that updates the printer profile based on the number of color patches

["When the color difference has exceeded the allowable level dEi, a profile is regenerated"; **page 9, paragraph 174, lines 1 - 2];**

and an image forming unit that forms a visible image on a medium

[Fig. 1 printer **107].**

As for claim 24, KUMADA teaches a method of image processing comprising:

performing color conversion of input data

["The color conversion module shown in Fig. 11 is supplied as software to, e.g., a personal computer ... The user can instruct execution of the colorimetric process via a user interface displayed on a monitor 1004"; **page 5, paragraph 95, lines 1 – 5.**

"A colorimeter (spectrophotometer) 1001 and colorimetric module 1002 measure color patches of a *sample image* ... printed by an output device. The colorimetric result is supplied to a profile generation module 1003 *on-line* or off-line"; **page 5, paragraph 92, lines 1 – 5],**

wherein the input data is color data obtained from *previous* measurement of a color chart of an image

[Fig. 1 *sample image* **109** produced by a color patch generator **108;** see also a *sample image* shown in **Fig. 4];**

storing the conversion data and history information [[on]] ***of*** **the** ***previous*** **measurement of the color chart**

["The colorimetric result is supplied to a profile generation module 1003 on-line or off-line, which generates a profile 1101D (Lab to CMYK conversion LUT: BtoA0) and profile 1101S (device value to Lab conversion LUT: AtoB0) as output device profiles according to the definitions of ICC (International Color Consortium) by the method explained in the above embodiments"; **page 5, paragraph 92, lines 4 – 10.**

KUMADA further teaches storing these profiles (i.e., "conversion data") in a memory (i.e., a "storage unit"). With reference to **Fig. 22**, KUMADA cites that "these conversion tables are finally stored in the memory 1012 as the ICC profiles of the output device 1010"; **page 6, paragraph 120, lines 6 – 7.**

With reference to **Fig. 26,** KUMADA illustrates a "sequence for saving colorimetric values *and history management information*, which is executed by the profile generation module 1003"; **page 8, paragraph 144, lines 1 – 4.** At step **S39**, "a list of colorimetric values (see FIG. 31) ... is saved at the same saving location as the profile"; **page 8, paragraph 152, lines 2 – 5.** At step **S41**,

"*history management information* (see FIG. 32) ... is saved at the same saving location as the profile"; **page 8, paragraph 153, lines 2 – 5];**

comparing the history information with information [[on the]] ***of new*** **measurement of the color chart to determine number of color patches**

[History information comprises of measured color patch colorimetric values taken at various "timings". KUMADA explains, "Colorimetric values Lab of color patches output at different timings and their history information are read, and the colorimetric values and standard colorimetric values Lab_i are compared ... If no standard colorimetric values Lab_i are available, colorimetric values used upon generating a profile are used in place of them"; **page 9, paragraph 165, lines 1 – 7.**

With reference to **Fig. 21**, KUMADA teaches a table which "defines standard Lab colorimetric values and allowable differences delta_E corresponding to CMYK values of the color patches"; **page 6, paragraph 107, lines 1 – 3.** "The profile generation module 1003 compares a colorimetric value Lab of each color patch and a corresponding standard value Lab_i stored in the table, and when the difference exceeds an allowable difference delta_E, the module 1003 attaches an alarm mark to the colorimetric result"; **page 6, paragraph 108, lines 1 – 5.** "If the operator instructs to execute the colorimetric process again, only color patches corresponding to the colorimetric results with alarm marks are measured

again"; **page 6, paragraph 110, lines 4 – 7.** That is, by comparing the colorimetric value of a new measurement of the color chart with a "standard colorimetric value" (which, in turn, may have been taken from a previously generated profile), a minimum number of patches to be measured can be determined**];**

and updating [[the]] a printer profile based on the number of color patches ["When the color difference has exceeded the allowable level dEi, a profile is regenerated"; **page 9, paragraph 174, lines 1 - 2].**

Regarding claim 26, KUMADA further teaches the method according to claim 24, wherein

the number of color patches is determined based on an evaluation standard, wherein the evaluation standard includes a *newly measured patch value* and a *patch value measured last time* and stored as the history information

[As noted for claim 1, by comparing the colorimetric value of a new measurement of the color chart with a "standard colorimetric value", a minimum number of patches to be measured can be determined.

Also noted for claim 1, KUMADA teaches that the "standard colorimetric values" may be "colorimetric values used upon generating a profile" (i.e., "patch values measured last time and stored as history information")**]**.

As for claim 37, KUMADA teaches a computer *readable medium tangibly embodying a* program ~~that makes~~ *of instructions executable by* a computer to ~~execute~~ *perform a method comprising*:

performing color conversion of input data,

["The color conversion module shown in Fig. 11 is supplied as software to, e.g., a personal computer ... The user can instruct execution of the colorimetric process via a user interface displayed on a monitor 1004"; **page 5, paragraph 95, lines 1 – 5.**

"A colorimeter (spectrophotometer) 1001 and colorimetric module 1002 measure color patches of a *sample image* ... printed by an output device. The colorimetric result is supplied to a profile generation module 1003 *on-line* or off-line"; **page 5, paragraph 92, lines 1 – 5];**

wherein the input data is color data obtained from *previous* measurement of a color chart of an image

[Fig. 1 *sample image* **109** produced by a color patch generator **108;** see also a *sample image* shown in **Fig. 4]**

storing the conversion data and history information [[on]] *of* the *previous* measurement of the color chart

["The colorimetric result is supplied to a profile generation module 1003 on-line or off-line, which generates a profile 1101D (Lab to CMYK conversion LUT: BtoA0) and profile 1101S (device value to Lab conversion LUT: AtoB0) as output device profiles according to the definitions of ICC (International Color Consortium) by the method explained in the above embodiments"; **page 5, paragraph 92, lines 4 – 10.**

KUMADA further teaches storing these profiles (i.e., "conversion data") in a memory (i.e., a "storage unit"). With reference to **Fig. 22**, KUMADA cites that "these conversion tables are finally stored in the memory 1012 as the ICC profiles of the output device 1010"; **page 6, paragraph 120, lines 6 – 7.**

With reference to **Fig. 26,** KUMADA illustrates a "sequence for saving colorimetric values *and history management information*, which is executed by the profile generation module 1003"; **page 8, paragraph 144, lines 1 – 4.** At step **S39**, "a list of colorimetric values (see FIG. 31) ... is saved at the same saving location as the profile"; **page 8, paragraph 152, lines 2 – 5.** At step **S41**, "*history management information* (see FIG. 32) ... is saved at the same saving location as the profile"; **page 8, paragraph 153, lines 2 – 5];**

comparing the history information with information [[on the]] ***of new*** **measurement of the color chart to determine number of color patches**

[History information comprises of measured color patch colorimetric values taken at various "timings". KUMADA explains, "Colorimetric values Lab of color patches output at different timings and their history information are read, and the colorimetric values and standard colorimetric values Lab_i are compared ... If no standard colorimetric values Lab_i are available, colorimetric values used upon generating a profile are used in place of them"; **page 9, paragraph 165, lines 1 – 7.**

With reference to **Fig. 21**, KUMADA teaches a table which "defines standard Lab colorimetric values and allowable differences delta_E corresponding to CMYK values of the color patches"; **page 6, paragraph 107, lines 1 – 3.** "The profile generation module 1003 compares a colorimetric value Lab of each color patch and a corresponding standard value Lab_i stored in the table, and when the difference exceeds an allowable difference delta_E, the module 1003 attaches an alarm mark to the colorimetric result"; **page 6, paragraph 108, lines 1 – 5.** "If the operator instructs to execute the colorimetric process again, only color patches corresponding to the colorimetric results with alarm marks are measured again"; **page 6, paragraph 110, lines 4 – 7.** That is, by comparing the colorimetric value of a new measurement of the color chart with a "standard

colorimetric value" (which, in turn, may have been taken from a previously generated profile), a minimum number of patches to be measured can be determined**];**

and updating [[the]] *a* printer profile based on the number of color patches **["**When the color difference has exceeded the allowable level dEi, a profile is regenerated"; **page 9, paragraph 174, lines 1 - 2].**

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over **KUMADA [US Patent Application 2002/0145744 A1]** in view of **BALASUBRAMANIAN [US Patent 7,064,860 B1]**.

Regarding claim 3, KUMADA does not specifically teach the image processing apparatus according to claim 1, wherein

> **the converting unit includes a table for converting multi-dimensional Lab values into one-dimensional vector values.**

BALASUBRAMANIAN discloses a method for adjusting the "tone reproduction curve" linearization. BALASUBRAMANIAN teaches a method of fine-tuning a printer by printing test patches, obtaining colorimetric L*a*b* values for each test patch, comparing a target value with the measured patch value, and minimizing the difference between the target value and measured value by constructing a set of one-dimensional "tone reproduction curves" **[see Fig. 2].**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of KUMADA with those of BALASUBRAMANIAN so that the printer could be fine-tuned by use of one-dimensional "tone reproduction curves", one for each of the printer's colorants.

8. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **KUMADA [US Patent Application 2002/0145744 A1]** in view of **KULKARNI [US Patent 6,870,636 B2]**.

As for claim 21, KUMADA teaches an image processing system comprising:

a server that updates a printer profile based on color data obtained from *previous* measurement of a color chart of an image

[Fig. 37 server **1501;** "The project DB that collects information required for generating profiles and the colorimetric value DB that collects colorimetric value data used in generation of profiles are present on a server 1501, and the generated profiles are present on clients 1502 to 1504"; **page 10, paragraph 182];**

and a client that is connected to the server

[Fig. 37 clients **1502 - 1504],**

wherein the server includes a converting unit that performs color conversion of the color data to produce conversion data

[KUMADA teaches that the server collects colorimetric data from a colorimetric module and that the transfer of data can be made by an "on-line" means. "A colorimeter (spectrophotometer) 1001 and colorimetric module 1002 measure

color patches of a sample image ... printed by an output device. The colorimetric result is supplied to a profile generation module 1003 *on-line* or off-line"; **page 5, paragraph 92, lines 1 – 5.** "The colorimetric value DB that collects colorimetric value data used in generation of profiles" is present on a server 1501; **page 10, paragraph 182, lines 2 – 4];**

a storage unit that stores the conversion data and history information [[on]] *of* the *previous* measurement of the color chart

[The colorimetric value DB collects colorimetric value data; **page 10, paragraph 182, lines 2 – 3.** "Upon generating a new profile, the profile generation module 1003 registers history management information and colorimetric value data in the respective databases"; **page 10, paragraph 183, lines 3 - 6];**

an arithmetic unit that compares the history information with information [[on the]] *of new* measurement of the color chart to determine number of color patches

[History information comprises of measured color patch colorimetric values taken at various "timings". KUMADA explains, "Colorimetric values Lab of color patches output at different timings and their history information are read, and the colorimetric values and standard colorimetric values Lab_i are compared ... If no standard colorimetric values Lab_i are available, colorimetric values used upon

generating a profile are used in place of them"; **page 9, paragraph 165, lines 1 – 7.**

With reference to **Fig. 21**, KUMADA teaches a table which "defines standard Lab colorimetric values and allowable differences delta_E corresponding to CMYK values of the color patches"; **page 6, paragraph 107, lines 1 – 3.** "The profile generation module 1003 compares a colorimetric value Lab of each color patch and a corresponding standard value Lab_i stored in the table, and when the difference exceeds an allowable difference delta_E, the module 1003 attaches an alarm mark to the colorimetric result"; **page 6, paragraph 108, lines 1 – 5.** "If the operator instructs to execute the colorimetric process again, only color patches corresponding to the colorimetric results with alarm marks are measured again"; **page 6, paragraph 110, lines 4 – 7.** That is, by comparing the colorimetric value of a new measurement of the color chart with a "standard colorimetric value" (which, in turn, may have been taken from a previously generated profile), a minimum number of patches to be measured can be determined**];**

and an updating unit that updates the printer profile based on the number of color patches

["When the color difference has exceeded the allowable level dEi, a profile is regenerated"; **page 9, paragraph 174, lines 1 - 2],**

and the client includes a profile storage unit that stores [[a]] *the* printer profile created ~~by the server~~

["The generated profiles are present on clients 1502 to 1504"; page 10, paragraph 182, lines 4 – 5; see also **Fig. 37** clients **1502 - 1504];**

However, KUMADA does not specifically teach

a printer driver that converts input color data received from an application into output color data that can be interpreted by an image forming apparatus.

KULKARNI discloses a method for determining color mappings for a color printer that can be incorporated into a printer driver. Like KUMADA, KULKARNI teaches a method of deriving these mappings by scanning color patches. KULKARNI explains, "The look-up table is derived from empirical measurements in device independent coordinates of predetermined device dependent color patches. The empirical measurements are preferably stored in a look-up table, with the look-up table commonly being referred to in the art as the 'forward model'. Accordingly, the look-up table that is derived by the present invention from the forward model look-up table will ... be referred to as the 'reverse model' look-up table"; **col. 1, line 65 – col. 2, line 6.**

KULKARNI further teaches a computer system **[Fig. 2]** consisting of a fixed disk that "typically contains operating system 30, device drivers 31, image files 32, and image processing applications 33"; **col. 3, line 66 – col. 4, line 1.** "It should be noted that device drivers 31 can form part of operating system 30, and that forward model look-up table 34 and reverse model look-up table 36 can be embedded in a printer driver included in device drivers 31"; **col. 4, lines 5 – 8.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of KULKARNI with those of KUMADA to enable a client computer to print from applications by using a printer driver.

Regarding claim 22, KUMADA further teaches the image processing system according to claim 21, further

comprising a measuring unit that measures the color chart to obtain Lab values

[Fig. 11 colorimeter **1001],**

and outputs the Lab values to the client

["When the user wants to know profile generation parameters, or ... wants to regenerate a profile by finely adjusting the profile generation parameters, the profile generation module 1003 acquires colorimetric value data from the colorimetric value DB"; **page 10, paragraph 198, lines 1 - 5].**

Allowable Subject Matter

9. Claims 4, 6 – 20, 25, and 27 – 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter L. Cheng whose telephone number is 571-270-3007. The examiner can normally be reached on MONDAY - FRIDAY, 8:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

plc
January 3, 2008

KING Y. POON
SUPERVISORY PATENT EXAMINER